

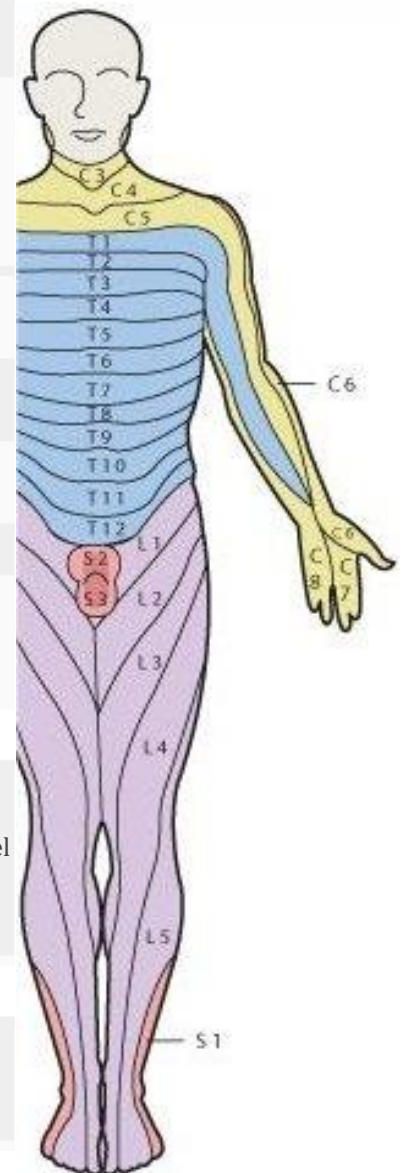


A spinal cord injury (SCI) is damage to the spinal cord or nerve roots within the spinal canal that results in a temporary or permanent loss or change of function, such as mobility and/or feeling. Frequent causes of spinal cord injuries are trauma (car accident, gunshot, falls, etc.) or disease (polio, spina bifida, viruses, etc.).

The spinal cord does not have to be severed for a loss of function to occur. In fact, in most people with spinal cord injury, the cord is intact, but the damage to it results in loss of function. Spinal cord injury is very different from back injuries, such as ruptured disks, spinal stenosis, or pinched nerves.

## Levels of Injury

Spinal Nerves	Muscle Function	Possible Therapy Goals
<b>Cervical Level</b>		
C-1 to C-2	Neck and face movement	Control wheelchair with sip and puff, type with adaptive equipment
C-3 to C-4	Diaphragm movement (breathing muscle)	
C-5	Elbow bending	Dress upper body, feed oneself with equipment
C-6	Wrist extension (bending wrist upward)	Dress lower body, turn self in bed, transfer with little or no assistance
C-7	Elbow straightening	Able to drive, independent with bathing and other self-care activities
C-8	Finger movement	Push wheelchair up and down curbs
<b>Thoracic Level</b>		
T-1 to T-12	Control of chest, abdomen (stomach area) & back muscles	Able to do all of the goals above this level more easily
<b>Lumbar Level</b>		
L-1 to L-2	Hip bend (flex)	Independent for all activities and bowel and bladder
L-3	Knee straightening	
L-4	Bend foot upward	
L-5	Extended toes	
<b>Sacral Level</b>		
S-1	Bend foot down toward floor	Able to walk, if able to push off ground may need adaptive equipment
S-2 to S-4	Perineal area (areas for urinating & bowel movements)	



## Words to Know

**ASIA Impairment Scale (AIS)** – This scale grades the severity of your injury from an A (most impaired) to E (normal). You may hear someone say they are AIS B (some sensory but no motor function). ASIA stands for the American Spinal Injury Association.

**Complete** – No sensory or motor function around the rectum.

**Incomplete** – There is partial damage to the spinal cord. You may have some sensory and/or motor function.

**Tetraplegia (or Quadriplegia)** – Paralysis caused by a cervical injury. It includes some degree of paralysis in both the upper body (shoulders, arms, hands, and fingers) and lower body (chest, legs, feet, and toes).

**Paraplegia** – Paralysis caused by a thoracic, lumbar, or sacral injury. It includes some degree of paralysis in the lower body (chest, legs, feet, and toes).

**Guillain-Barre Syndrome (gee-YAH-buh-RAY)** - A rare illness that affects the spinal and cranial nerves. This causes the nerves to be unable to carry messages for movement, feeling, reflexes, and bowel/bladder control.

**Central Cord Syndrome**- Usually results from trauma and is associated with damage to the larger nerve fibers that carry messages directly from brain to spinal cord. Symptoms may include paralysis and/or loss of fine motor movement in arms/hands, with far less impairment in legs.

**Nerve**- Connects the brain and spinal cord with parts of the body; carries messages for movement and feeling.

**Motor nerve**- A nerve which carries movement messages.

**Sensory nerve**- A nerve which carries messages of touch, pressure, pain, and temperature to the spinal cord and brain.

**Nervous system**-Includes the brain, spinal cord, and nerves. It controls all body functions.

**Spasm**- An uncontrolled muscle movement.

**Spinal column**- The backbone, made up of many sections of bone (vertebrae) stacked one on top of the other. The spinal cord runs down through a canal in the middle of this column.

**Spinal cord**- Carries messages about movement and feeling to and from the brain; contains reflex centers.

**Spinal shock**- A period of time when reflex, movement, and feeling are absent below the level of injury.